UNIVERSITY OF SWAZILAND

Faculty of Health Science

Department of Environmental Health Sciences

Final Examination 2009

Title of paper: INTRODUCTION TO TOXICOLOGY

Course code: EHS 561

Time allowed: 2 hours

Marks allocation: 100 Marks

Instructions:

1) Read the questions and instructions carefully
2) Answer FOUR questions
3) Each question is weighted 25 marks
4) Write neatly and clearly

This paper is not to be opened until the invigilator has granted permission

QUESTION 1

a) Occupational medical practitioners would need appropriate information when treating someone with metal toxicity. What are these factors influencing metal toxicity? [6]
b) Mention 4 signs of acute toxicity [4]
c) Define food processing and give 4 reasons for food processing [5]
d) What is a food additive? [2]
e) Define Acceptable Daily Intake (ADI). [2]
f) Differentiate between systemic and organ toxicity and give an example in each case [6]

QUESTION 2

a) Define the determinants of the nature, incidence and severity of a chemical teratogen? [6].
b) In principles of developmental toxicology, discuss the 5 critical periods of susceptibility and endpoints [10].
c) What is the difference between biomarkers of exposure and biomarkers of susceptibility? [4].
d) Define toxicology? [5]

QUESTION 3

a) What is environmental toxicology? [5]
b) Mention 10 factors influencing physiological effects of toxicology. [10]
c) Define the following terms [10]
    - Additivity
    - Antagonism
    - Potentiation
    - Synergism
    - Interaction

QUESTION 4

a) Differentiate between a mutagen and teratogen [4]
b) What is toxicokinetics? [5]
c) Mention and discuss in brief the 4 processes involved in toxico-kinetics [5]
d) What is the importance of the placental barrier? [5]
e) Mention and discuss the 3 types of specificity in relation to the array of enzymes [6]

QUESTION 5

a) **Toxicants can be stored in 3 different sites in the body name them. [6]**
b) **Differentiate between detoxification and bioactivation [6]**
c) **Name the measure transformation reaction for xenobiotics [8]**
d) **Explain the term disposition in toxicology [5]**